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SPIDERS FROM THE SOUTHWESTERN UNITED STATES, WITH DESCRIPTIONS OF NEW SPECIES

By W. J. Gertsch

The following paper is for the most part a report on a collection of spiders taken in Arizona by a field party from The American Museum of Natural History headed by Dr. F. E. Lutz. Although spiders were to an extent incidental to the purpose of the expedition, namely the collecting of insects, a number of species were taken and are listed below. During the course of the trip the chasm of the Grand Canyon, the highly interesting plateau regions of the north and south rims, and the San Francisco Mountains were investigated. The paper has been considerably expanded by the inclusion of various new species and new records from material collected in Arizona by Dr. Lutz on previous trips, and particularly by descriptions of unusual species taken in southern Texas by Mr. Stanley Mulaik.

Of paramount interest are the records of two families of spiders not heretofore reported from the United States. *Tama mexicana* (Cambridge), a representative of the Hersiliidae, has been found by Mr. Mulaik to be a fairly common spider in southern Texas. From the same region comes *Zorocrates aemulus*, a new species of the family Zoropsidae. A single immature female of a second species of the genus was taken by Dr. Lutz in Arizona, in 1916, and seems to be *Zorocrates mistus* (Cambridge). In addition, a second species of the curious two-eyed spiders of the family Caponiidae and another *Filistata* are recorded from the United States.

The types of the species described as new are in the collection of The American Museum of Natural History.

Suborder Mygalomorphae

Ctenizidae

Hebestatis theveneti (Simon)

Figure 1

Cyclocosmia theveneti Simon, 1890, Actes Soc. Linn., Bordeaux, XLIV, p. 313.

Record.—Bizbee, Arizona, 1907, female (Edmundson).

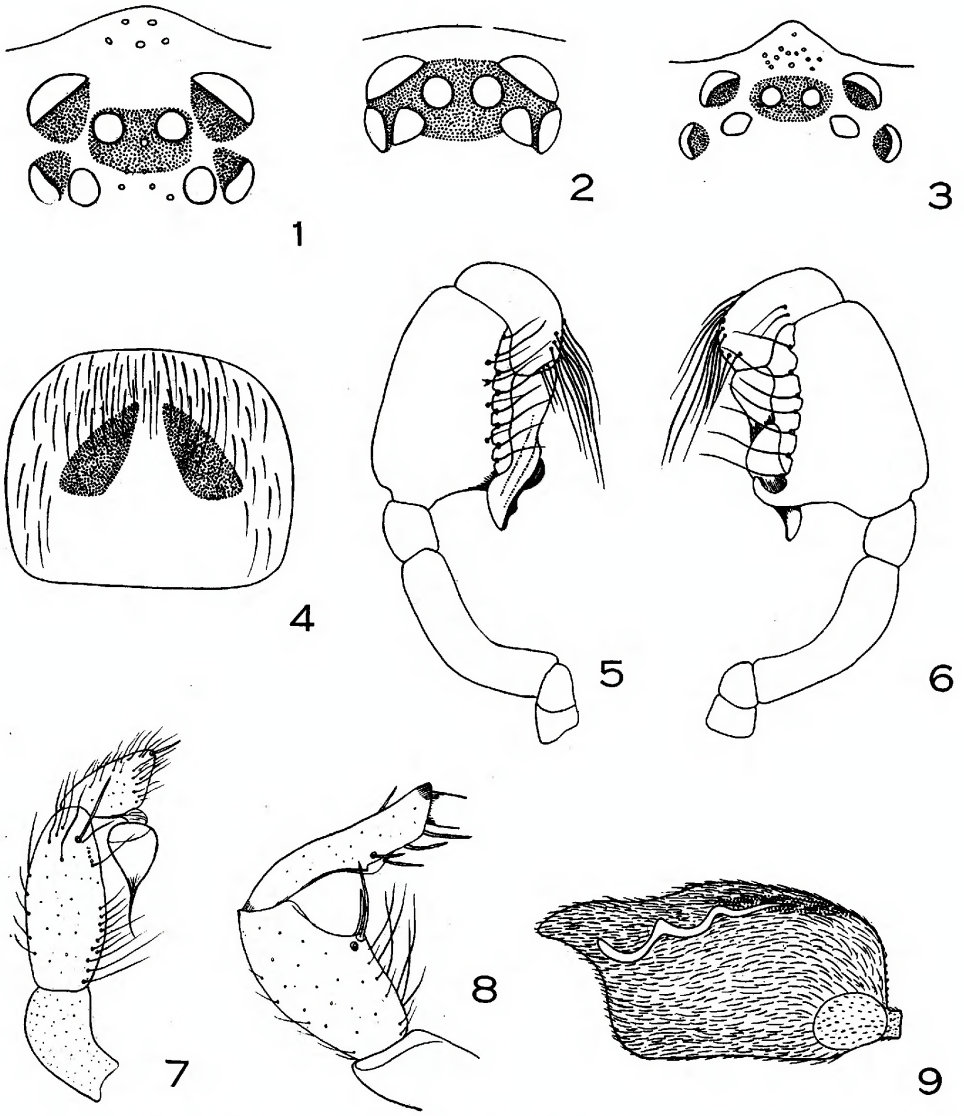


Fig. 1. *Hebestatis theveneti* (Simon), eyes of female.
Fig. 2. *Evagrus comstocki*, new species, eyes of male.
Fig. 3. *Myrmekiaphila comstocki* Bishop and Crosby, eyes of female.
Fig. 4. *Filistata crassipalpus*, new species, epigynum.
Fig. 5. *Filistata crassipalpus*, new species, palpus, retrolateral view.
Fig. 6. *Filistata crassipalpus*, new species, palpus, prolateral view.
Fig. 7. *Evagrus comstocki*, new species, palpus.
Fig. 8. *Evagrus comstocki*, new species, second leg of male.
Fig. 9. *Diguetia caudata*, new species, abdomen of female.

Myrmekiaphila fluviatilis (Hentz)

Mygale fluviatilis Hentz, 1850, Jour. Boston Soc. Nat. Hist., VI, p. 286, Pl. x, fig. 15.

Records.—Kingsville, Texas, female (Clyde T. Reed). Mission, Texas, female. Austin, Texas, July, 1903, female (Det. by A. Petrunkevitch).

Myrmekiaphila comstocki Bishop and Crosby

Figure 3

Myrmekiaphila comstocki Bishop and Crosby, 1926, Jour. Elisha Mitchell Sci. Soc., XLI, p. 168, Figs. 7 and 8.

Record.—Edinburg, Texas, two females (S. Mulaik).

Dipluridae

Evagrus comstocki, new species

Figures 2, 7, and 8

Male.—Total length, exclusive of chelicerae and spinnerets, 8.00 mm. Carapace, 3.75 mm. long, 2.85 mm. wide.

Carapace and legs dull yellow, the abdomen gray. Eyes enclosing a black field. Carapace oval, weakly truncated in front, flat. Circular thoracic fovea somewhat behind the middle of the carapace, from which radiate four pairs of striae, the first pair limiting the V-shaped, slightly elevated pars cephalica.

Eyes occupying two-fifths of the width of the carapace at that point. Clypeus only two-thirds as high as the diameter of an anterior median eye. First row of eyes procurved, equidistantly spaced, the medians half as large as the laterals. Second row of eyes very slightly recurved, the medians subtriangular in shape, slightly smaller than the oval lateral eyes. Posterior median eyes separated by about twice their diameter, subcontiguous with the laterals. Median ocular quadrangle much broader than long, narrowed in front, the eyes subequal.

Sternum longer than broad (14/9), subquadrangular, weakly rounded behind. Coxae subequal, the posterior pair contiguous. Labium three times as broad as high, one-fifth as high as the divergent endites. Under side armed with a few spines and hairs. Chelicerae strongly convex, lacking rastellum, armed with stiff spines, the outer margin of the furrow with a band of hairs, the inner with ten or twelve unequal teeth.

Legs comparatively short, the first femur and patella about equal in length to the carapace. Palpus as figured. Leg formula, 4132.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	2.25	1.37	1.50	1.55	1.00	7.67 mm.
II	2.12	1.25	1.38	1.50	1.08	7.33 mm.
III	2.12	1.08	1.38	1.95	1.10	7.63 mm.
IV	2.56	1.55	2.00	2.25	1.40	9.76 mm.

First femur with a retrolateral, the second with a prolateral patch of tiny setae. Legs provided with black hairs and some spines. First tibia with six conspicuous

prolateral and twelve ventral spines. Second leg modified, as usual in the genus, as shown in the figure.

Abdomen about two-thirds as broad as long, rather thickly clothed with black hairs and spines. Spinnerets four, the one-jointed median ones small, the outer ones made up of three subequal joints, the whole spinneret nearly as long as the tibia and patella of the fourth leg (8/9).

FEMALE.—Total length, exclusive of chelicerae and spinnerets, 9.00 mm. Carapace, 3.85 mm. long, 2.90 mm. wide. The whole spider lightly infuscated. Structure as in the male. Lateral spinnerets, 3.50 mm. long. Spines beneath first tibia, 2–2, beneath first metatarsus, 1–2–2–1–2.

	FEMUR	PATELLA	TIBIA	METATARSUS	TARSUS	TOTAL
I	2.25	1.50	1.50	1.50	1.00	7.75 mm.
II	2.25	1.40	1.40	1.50	1.00	7.55 mm.
III	2.00	1.25	1.40	2.00	1.12	7.77 mm.
IV	2.75	1.50	2.00	2.56	1.30	10.11 mm.

TYPE LOCALITY.—Male holotype from Edinburg, Texas (S. Mulaik). Female allotype from one-half mile east of Rio Grande City, Texas, Nov. 11, 1934 (S. Mulaik). Female paratype from east of Laredo, Texas, Nov. 11, 1934 (S. Mulaik). Female paratype from Sanderson, Texas, July 4, 1934 (S. Mulaik). Female paratypes from Austin, Texas, Sept., 1909 (A. Petrunkevitch).

This species is closely related to *Evagrus pragmaticus* Chamberlin from Sonora, but the differences in the structure of the second leg of the male and in the eye relations seem to warrant its description as new. The female paratypes from Austin differ considerably in color from the allotype, and it would not be surprising if, upon discovery of a male, the two were found to represent distinct species.

AVICULARIIDAE

Eurypelma marxi Simon

Eurypelma marxi SIMON, 1890, Actes Soc. Linn., Bordeaux, XLIV, p. 324.

RECORDS.—Edinburg, Texas, June, 1934, female (S. Mulaik). Jemez Springs Mountains, New Mexico, male, female. Fruita, Utah, July 14, 1931, male (Gertsch).

Eurypelma californica Ausserer

Eurypelma californica AUSSERER, 1871, Verh. k. k. Zool.-Bot. Gesell., Wien, XXI, p. 214.

RECORD.—Tucson, Arizona, July and Aug., 1934, many females, four males (P. Steckler).

Eurypelma steindachneri Ausserer

Eurypelma steindachneri Ausserer, 1875, Verh. k. k. Zool.-Bot. Gesell., Wien, XXV, p. 199, Pl. VII, figs. 43–44.

Record.—Phantom Ranch, Grand Canyon, Arizona, July 26, 1934, male (F. E. Lutz).

Suborder Dipneumonomorphae

Filistatidae

Filistata crassipalpus, new species

Figures 4, 5, and 6

Male.—Total length, 1.50 mm. Carapace, 0.69 mm. long, 0.62 mm. wide. Abdomen, 1.00 mm. long, 0.50 mm. wide.

Cephalothorax mainly dark brown, the margins and eye region black, clothed with a few inconspicuous scales. Carapace about as broad as long, almost round, the sides slightly flattened, the clypeal portion a rounded projection. Carapace weakly convex, the longitudinal median furrow well indicated, the lateral margins turned up to form a submarginal trough or furrow. Eye group elevated on a tubercle. Eyes occupying half the width of the carapace at that point, the rows equally wide. First row of eyes procurved, the medians separated by half their radius, about as far from the much larger lateral eyes (13/9). Second eye row straight, the medians separated by a diameter, subcontiguous with the slightly larger laterals (12/11). Median ocular quadrangle three-fourths as long as broad, the anterior eyes slightly smaller. Sternum longer than broad (7/6), well rounded on the sides, bluntly pointed behind where the fourth coxae are separated by one-third their width. Labium five-sixths as broad as long, three-fifths as long as the convergent endites. Abdomen dark brown, longer than broad, clothed with a few gray scales.

Leg formula, 1423. All femora with a dorsal spine at the base; the first and second tibiae with a single median ventral spine. Legs yellow, the femora with a basal, median and distal and the tibiae and metatarsi with basal and distal black annulae. Palpus chelate, as figured.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	0.85	0.29	0.85	0.77	0.44	3.20 mm.
II	0.73	0.24	0.67	0.69	0.31	2.64 mm.
III	0.61	0.24	0.62	0.69	0.31	2.47 mm.
IV	0.85	0.29	0.85	0.85	0.33	3.17 mm.

Female.—Total length, 1.77 mm. Carapace, 0.61 mm. long, 0.61 mm. wide. Abdomen, 1.10 mm. long, 0.85 mm. wide.

Coloration and structure essentially as in the male. Carapace as broad as long, dark brown in color, somewhat streaked, clothed with long, gray scales. Sternum as broad as long. Abdomen much broader than in the male, rather thickly clothed with long, scalelike, gray spines. Legs slightly more robust than in the male, proportionately shorter, the first tibia equal in length to the carapace. Legs lacking the spines that are present in the male. Epigynum as figured.

TYPE LOCALITY.—Male holotype, female allotype and paratype from thirty-two miles east of Laredo, Texas, Nov. 11, 1934, collected by Mr. Stanley Mulaik.

This tiny species seems to differ in no important structural characteristic from the much larger species of *Filistata* found in the United States. The male palpus, though apparently radically different from the palpi of the other species, is essentially identical in details with other members of the genus.

Filistata hibernalis (Hentz), variety

Filistata hibernalis HENTZ, 1842, Jour. Boston Soc. Nat. Hist., IV, p. 227, Pl. VIII, fig. 6.

RECORDS.—Grand Canyon, Arizona, South Rim, July 31, 1934, female (Lutz). Kaibab Plateau, North Rim Grand Canyon, Arizona, July 10, 1931, female (Gertsch). Scottsdale, Arizona, male, females (Britcher). Tucson, Arizona, July and Aug., 1934, females (P. Steckler).

SICARIIDAE

Plectreurys tristis Simon

Plectreurys tristis SIMON, 1893, Ann. Soc. Entom. France, LXII, p. 300.

RECORD.—Fredonia, Arizona, July 9, 1931, two females (Gertsch).

Diguetia canities (McCook)

Segestria canities McCOOK, 1889, 'American Spiders,' II, p. 136, Figs. 165, 166.

RECORDS.—Edinburg, Texas, male, females (S. Mulaik). Scottsdale, Arizona, Jan. 28, 1903, female (Britcher). St. George, Utah, female (L. A. Woodbury). Chuckawalla Mountains, California, Dec. 20, 1927, female (E. C. Jaeger). Indian Gardens, Grand Canyon, Arizona, July 24, 1934, female (F. E. Lutz). Between Cameron and Lee's Ferry, July 17, 1934, female (F. E. Lutz).

Diguetia caudata, new species

Figure 9

FEMALE.—Holotype: total length, 5.75 mm.; carapace, 2.10 mm. long, 1.25 mm. wide. Paratype: total length, 5.20 mm.

Integument of the carapace light brown, thickly covered on the sides with white scales, the clypeus and the pars cephalica margined with rows of white scales. Carapace much longer than broad, rounded in front and at the caudal end, relatively low and flat, the sutures delimiting the cephalic portion well defined. Triangular pars cephalica two-thirds as long as the total length of the carapace. Eye group five-sevenths as broad as the carapace at that point. Clypeus convex, twice as high as the diameter of a central eye. Lateral eyes subcontiguous, equal in size, placed on slightly elevated, black tubercles, smaller than the subcontiguous median eyes. Line of the

medians and the anterior laterals straight, the medians a diameter from the laterals. Sternum, labium and endites rather thickly clothed with white scales. Sternum scarcely three-fourths as broad as long, bluntly pointed behind where the coxae are but slightly separated, rounded on the sides, squared off in front at the intimate juncture with the labium, at which point the first coxae are separated by the length of the second coxa. Labium broader than long, eight-thirteenths as long as the convergent endites.

Legs yellow, provided with numerous black hairs and very weak spines, annulate as in *Diguetia canities* (McCook) but the rings virtually obsolete, most distinct on the last leg where distal femoral, patellar, and distal tibial annulae are present.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	3.00	0.70	2.37	2.15	0.95	9.17 mm.
II	2.55	0.60	2.00	1.87	0.80	7.82 mm.
III	1.95	0.50	1.20	1.50	0.57	5.72 mm.
IV	2.75	0.60	2.00	2.15	0.70	8.20 mm.

Abdomen nearly twice as long as broad, thickly clothed above and on the sides with yellowish scales, with an indistinct basal dark marking and with two sinuous stripes of white scales above. Venter dark brown. Abdomen with a well-defined caudal appendage as shown in the figure. Spiracle half as far from the spinnerets as the genital furrow.

Type Locality.—Female holotype and paratype from Sabino Basin, Santa Catalina Mountains, Arizona, July 8–12, 1916 (F. E. Lutz).

This species closely parallels *Diguetia canities* (McCook) in structure and color pattern and may, upon discovery of the male, prove to be only a variety of that species. However, the possibility is quite as good that it represents a distinct species, for the females of the few known forms are very closely allied. The pronounced caudal appendage distinguishes it from other known species.

Scytodes perfecta Banks

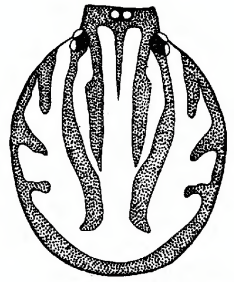
Figures 12 and 17

Scytodes perfecta Banks, 1898, Proc. California Acad. Sci., (3) I, p. 210, Pl. xiii, fig. 2.

Female.—Total length, 7.00 mm. Carapace, 3.50 mm. long, 3.25 mm. wide. Abdomen, 3.50 mm. long, 3.25 mm. wide.

Integument of the carapace yellow, the dorsum clothed with erect, black hairs, the sides lacking them. Color pattern restricted mainly to the sides as shown in the figure. Carapace about as broad as long, suboval, the front truncate. Carapace strongly convex, highest behind, half as high as the greatest length, the posterior declivity abrupt, the curvature more gradual in front to the clypeus. Sternum armed with a few black hairs, suboval, truncate behind where the fourth coxae are separated by little more than their width, the sides gently rounded.

Eyes on separate black patches. Eyes subequal, the medians contiguous, a little more than their radius from the clypeal margin, the lateral pairs subequal, contiguous. Curvature of the six eyes considerable, a line across the front edge of the



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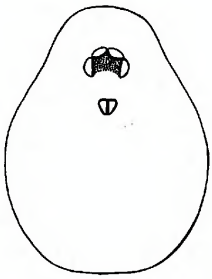

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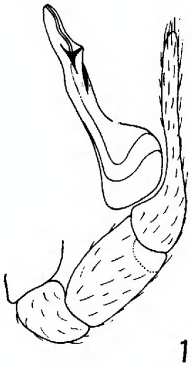

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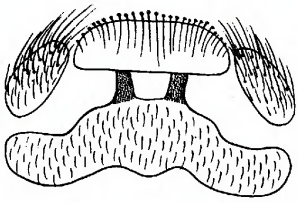

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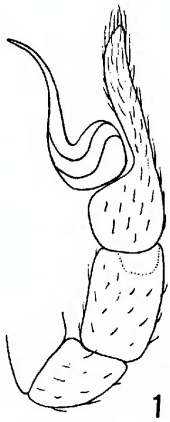

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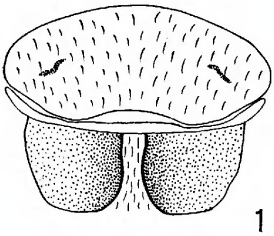

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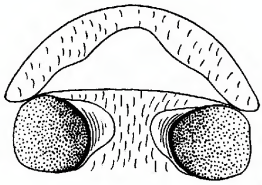

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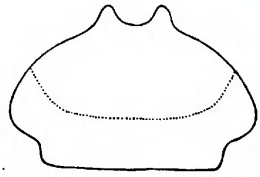

18

Fig. 10. *Scytodes dorothea*, new species, carapace of female.
Fig. 11. *Leptoneta californica* Banks, carapace of female.
Fig. 12. *Scytodes perfecta* Banks, carapace of female.
Fig. 13. *Scytodes dorothea*, new species, palpus.
Fig. 14. *Psilochorus pullulus* (Hentz), epigynum.
Fig. 15. *Scytodes intricata* Banks, palpus.
Fig. 16. *Scytodes intricata* Banks, epigynum.
Fig. 17. *Scytodes perfecta* Banks, epigynum.
Fig. 18. *Psilochorus rockefelleri*, new species, epigynal ridges.

anterior laterals, when all eyes are viewed on the same plane, is over a diameter from the median eyes. Width of the lateral pairs of eyes equal to the carapace at that point.

Legs long, yellow, clothed with rows of black hairs, the patellae with an incomplete black ring. Second legs missing.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	4.00	0.80	4.25	5.50	0.75	15.30 mm.
III	2.62	0.80	2.60	3.12	0.62	9.76 mm.
IV	3.62	0.80	3.82	4.00	0.75	12.99 mm.

Abdomen clothed with black hairs, gray in color, with four rows of black spots in the caudal half. Epigynum as figured.

Records.—Tucson, Arizona, July and Aug., 1934, female (Peter Steckler). Edinburg, Texas, March and April, 1934, two immature females (S. Mulaik).

Scytodes intricata Banks

Figures 15 and 16

Scytodes intricata Banks, 1909, Proc. Acad. Nat. Sci. Philadelphia, VI, p. 196, Pl. vi, fig. 24.

This is the species that Comstock recorded from Texas as *Scytodes longipes* Lucas in 'The Spider Book.' *Scytodes intricata* differs from that species in the details of the epigynum and palpus, which are figured, and in the much shorter legs. I have seen two females of the true *longipes* from Key West, Florida, collected July 14, 1934. Seven species of the genus *Scytodes* are now known from the United States, all but *Scytodes thoracica* confined to the extreme southern states. *Scytodes fusca* Walckenaer, *S. championi* Cambridge, *S. intricata* Banks, *S. perfecta* Banks, and *S. dorothea*, a new species described below, are known from southern Texas, all these notable records due to the indefatigable collecting of Mr. and Mrs. Stanley Mulaik of Edinburg, Texas.

Scytodes dorothea, new species

Figures 10 and 13

Male.—Total length, 3.10 mm. Carapace, 1.60 mm. long, 1.38 mm. wide.

Integument of the carapace dull yellow, sparsely set with erect black spines. Carapace longer than broad, suboval, the pars cephalica abruptly delimited from the thoracic curvature, the front truncate. Carapace strongly convex, a little higher at the caudal end, abruptly dropping behind to the margin, more gradually inclined in front to the clypeus. Dorsum with two broken, purplish-black stripes above, with a dark marginal band. Sternum oval, yellow, armed with black hairs. Coxae subequal.

Eyes enclosed in the black dorsal bands. Eyes subequal, the medians contiguous, a little more than their radius from the clypeal margin, the lateral pairs equal in size, contiguous. Curvature of the six eyes moderate, a line across the front edge of the anterior laterals, when all eyes are viewed on the same plane, is only a radius

from the edge of the medians. Width of the lateral pairs of eyes two-thirds the width of the carapace at that point.

Palpus as figured. Legs moderately long, the first tibia being as long, the femur as wide as the carapace. Legs yellow, unmarked, armed with rows of black hairs.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	1.38	0.37	1.65	1.82	0.40	5.62 mm.
II	1.20	0.37	1.20	0.09	0.30	3.97 mm.
III	1.00	0.35	0.85	1.30	0.40	3.90 mm.
IV	1.30	0.37	1.37	1.30	0.40	4.74 mm.

Abdomen armed with black spines, black in color, with a longitudinal dorsal and two transverse light stripes.

Female.—Total length, 4.00 mm. Carapace, 1.50 mm. long, 1.30 mm. wide. Abdomen, 2.50 mm. long, 1.70 mm. wide.

Color pattern agreeing well with the male, but the dorsal bands wider. Carapace proportionately higher than in the male, much more convex, the caudal declivity and sides dropping more abruptly. Abdomen longer than broad, oval, cylindrical, with a median pale stripe and three oblique side stripes. Eyes as in the male. Legs shorter and weaker than in the male, yellow, the tibiae with basal and distal dark bands.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	1.00	0.30	1.00	1.07	0.37	3.74 mm.
II	0.75	0.30	0.80	0.80	0.32	2.97 mm.
III	0.70	0.30	0.57	0.60	0.30	2.47 mm.
IV	1.00	0.35	1.00	0.87	0.37	3.59 mm.

Type Locality.—Male holotype from Edinburg, Texas, Oct. 22–25, 1934. Female allotype and paratype from Edinburg, Texas, March and April, 1934. Female paratype from Arroyo Colorado, Cameron County, Texas, Sept., 1934. All the material was collected by Mr. Stanley Mulaik.

This fine species is named for Mrs. Stanley Mulaik.

Pholcidae

Artema atlanta Walckenaer

Artema atlanta Walckenaer, 1837, 'Insectes Apteres,' I, p. 656.

Record.—Ruins near Tucson, Arizona, July and Aug., 1394, many males and females (P. Steckler).

This large, well-known species is common throughout tropical America but apparently has not heretofore been recorded from within the limits of the United States.

Physocyclus tanneri Chamberlin

Physocyclus tanneri Chamberlin, 1921, Canadian Entomologist, LIII, p. 245, Figs. 1–3.

RECORD.—Supai, Havasu Canyon, Arizona, Aug. 2, 1934, immature female (F. E. Lutz).

A single immature specimen in the collection probably belongs to this species which is common in the region around St. George, Utah. *Physocyclus enaulus* Crosby, a closely allied species, is found in New Mexico and Texas and is no doubt the species usually reported as *P. globosus* from the southwestern States. *Physocyclus neomexicanus* Chamberlin and Gertsch is a synonym of *enaulus*. The only specimen of the true *globosus* that I have seen from the United States comes from Florida.

Pholcophora texana, new species

Figures 22, 23, and 24

MALE.—Total length, 1.28 mm. Carapace, 0.64 mm. long, 0.53 mm. wide.

Carapace and appendages yellow, the abdomen gray. Eyes on a black field. Carapace subtriangular, convex, longer than broad, broadest at the third coxae, truncated behind, considerably narrowed in front, highest just behind the ocular area. Median and cephalic sutures poorly indicated.

Anterior row of eyes procurved (slightly recurved in dorsal aspect), the eyes subcontiguous, the medians very small, the laterals larger than the posterior eyes. Posterior eye row slightly recurved, the eyes subequal in size, the medians separated by one diameter, subcontiguous with the laterals. Median ocular quadrangle broader than long (10/7), a little more than half as wide in front, the anterior median eyes much smaller. Clypeus sloping, three times as high as the diameter of an anterior median eye.

Sternum broader than long (27/22), truncated in front and provided with a blunt apophysis on each side. Labium subtriangular, broader than long. Endites strongly convergent, contiguous at the distal ends. Chelicera armed at the base on the outer side with a long, straight spine, twice as long as in *Pholcophora americana* Banks. Legs provided with rows of black hairs. Abdomen thickly set with strong, black bristles. Palpus as figured.

	FEMUR	PATELLA	TIBIA	METATARSUS	TARSUS	TOTAL
I	0.93	0.21	0.93	0.98	0.36	3.41 mm.
II	0.74	0.20	0.64	0.78	0.32	2.68 mm.
III	0.63	0.15	0.54	0.78	0.31	2.41 mm.
IV	1.00	0.21	0.94	1.04	....	.....

TYPE LOCALITY.—Male holotype and immature female allotype from a Brick Yard, one-half mile east of Rio Grande City, Texas, Nov. 11, 1934 (S. Mulaik).

Pholcophora americana Banks

Figures 19, 20, and 21

Pholcophora americana BANKS, 1893, Trans. American Ent. Soc., XXIII, p. 57.

RECORDS.—Lehi, Utah, August, 1930, male, female (Gertsch). Yellowstone National Park, Wyoming, Aug. 10, 1931, two males (W. E.

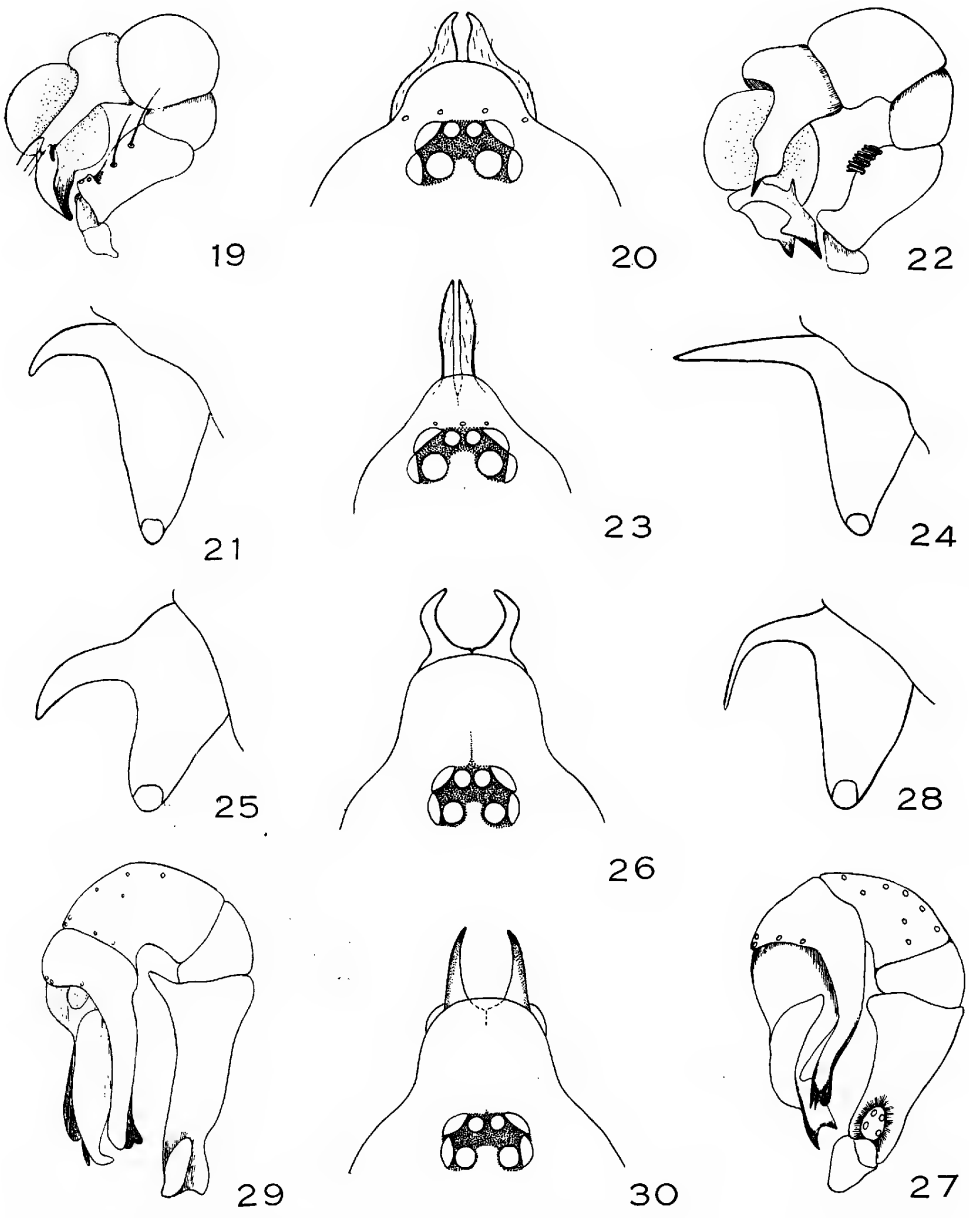

Fig. 19. *Pholcophora americana* Banks, palpus.
Fig. 20. *Pholcophora americana* Banks, eyes and cheliceral spines.
Fig. 21. *Pholcophora americana* Banks, chelicera, lateral view.
Fig. 22. *Pholcophora texana*, new species, palpus.
Fig. 23. *Pholcophora texana*, new species, eyes and cheliceral spines.
Fig. 24. *Pholcophora texana*, new species, chelicera, lateral view.
Fig. 25. *Psilochorus pullulus* (Hentz), chelicera, lateral view.
Fig. 26. *Psilochorus pullulus* (Hentz), eyes and cheliceral spines.
Fig. 27. *Psilochorus pullulus* (Hentz), palpus.
Fig. 28. *Psilochorus pallidulus*, new species, chelicera, lateral view.
Fig. 29. *Psilochorus pallidulus*, new species, palpus.
Fig. 30. *Psilochorus pallidulus*, new species, eyes and cheliceral spines.

Gertsch). Boise River, above Arrowrock Dam, Idaho, June 11, 1931, male, females (W. Ivie). LaSalle, Flathead Co., Montana, males, females (C. Jellison, Jr.). Near Medford, Oregon, females (Fender).

This interesting little species, originally described from Colorado, is fairly common throughout the western part of the United States. As it has never been illustrated, figures are given for comparison with *Pholcophora texana*, new species. The important differences in the structure of the cheliceral spines, the much larger size, and the details of the palpus readily separate *americana* from the second known species in the genus.

Psilochorus rockefelleri, new species

Figure 18

FEMALE.—Total length, 2.25 mm. Carapace, 0.88 mm. long, 0.87 mm. wide.

Integument of the carapace pale yellow, the head portion and clypeus infuscated, the eyes ringed in black, the cephalic sutures blackened. Carapace as broad as long, the pars thoracica convex, the pars cephalica strongly elevated. Sutures deep, the median one going back nearly to the truncate caudal margin. Eyes of the first row procurved, subcontiguous, the medians half as large as the laterals. Eyes of the second row very slightly recurved, equal in size and equal to the anterior laterals, the medians subcontiguous with the laterals, separated from each other by one diameter. Median ocular quadrangle much broader than long, considerably narrowed in front, the anterior medians half as large as the posterior eyes. Head portion and clypeus armed with a few erect, weak spines. Clypeus sloping, concave, about twice as high as the length of the ocular area. Sternum broader than long (10/8.5), weakly rounded behind where the posterior coxae are separated by their length, truncate in front. Labium broader than long (3/1), one-third as high as the strongly convergent endites. First and fourth coxae subequal, a little longer than the equal second and third coxae Under parts armed with a very few erect hairs. Femur of the first leg about three and one-half times as long as the carapace.

Abdomen subglobose, mainly blue in color, with white and black spots showing through the integument. Epigynal ridges very much as in the other species but armed with two well-defined tubercles as shown in the figure.

TYPE LOCALITY.—Female holotype from south of Flagstaff, Arizona, near James Crossing of Clear Creek, July 22, 1934 (F. E. Lutz).

The presence of distinct tubercular eminences on the epigynal ridges will differentiate this species from any heretofore described from the United States.

Psilochorus pallidulus, new species

Figures 28, 29, and 30

MALE.—Total length, 1.75 mm. Carapace, 0.85 mm. long, 0.80 mm. wide.

Integument of the carapace dull yellow, the eyes in a black field, the median suture blackened. Carapace about as broad as long, the pars cephalica elevated above the convex cephalic portion, delimited by deep sutures. Eyes of the first row

procurved, subcontiguous, the medians half as large as the laterals. Eyes of the posterior row straight, the medians separated by a diameter, subcontiguous with the equal laterals. Posterior eyes equal to the anterior laterals. Median ocular quadrangle about two-thirds as long as broad, half as broad in front, the anterior medians half as large as the posterior eyes. Clypeus twice as high as the length of the ocular area. Chelicerae armed with curved basal spines as illustrated in the figures. Sternum and labium as in *P. rockefelleri*, the endites armed near the base with a rounded tubercle. Femur of the first leg three and a half times as long as the carapace. Palpus as figured.

Abdomen subglobose, dull yellow in color, the dorsum with a few small black spots at the caudal end.

TYPE LOCALITY.—Male holotype from Edinburg, Texas, Sept. to Dec., 1933 (S. Mulaik).

The single male is not in a good state of preservation, but the differences in the structure of the mandibular spines make the identification of this species easy. The palpus differs little from the other members of the genus.

Psilochorus pullulus (Hentz)

Figures 14, 25, 26, and 27

Theridion pullulum HENTZ, 1850, Jour. Boston Soc. Nat. Hist., VI, p. 282, Pl. x, fig. 5.

This seems to be the common species of the genus in southern Texas and is also widely distributed in the southeastern States. *Psilochorus utahensis* Chamberlin is closely allied but is a larger spider and has the palpus more elongate. The cheliceral spines are very similar in the two species. Figures of *pullulus* are given for comparison with *Psilochorus pallidulus*, new species.

DICTYNIDAE

Dictynina eutypa (Chamberlin and Gertsch)

Dictyna eutypa CHAMBERLIN AND GERTSCH, 1929, Pomona College Jour. Ent. and Zoöl., XXI, p. 101, Pl. I, fig. 2.

RECORDS.—Phantom Ranch, Grand Canyon, Arizona, July 26, 1934, two females (F. E. Lutz); one female (D. Rockefeller). Scottsdale, Arizona, Jan. 16, 1903, male, females (Britcher).

Dictyna uintana Chamberlin

Dictyna uintana CHAMBERLIN, 1919, Ann. Ent. Soc. America, XII, p. 240, Pl. XIV, figs. 3–5.

RECORDS.—Aspen Spring, San Francisco Mountains, Arizona, Aug. 11, 1934, female (D. Rockefeller). San Francisco Mountains, Arizona, 8000 feet, Aug. 13, 1934, female (D. Rockefeller); 12,600 feet, Aug. 12, 1934, female (D. Rockefeller).

Dictyna completa Chamberlin and Gertsch

Dictyna completa Chamberlin and Gertsch, 1929, Pomona College Jour. Ent. and Zoöl., p. 101, Pl. I, fig. 1.

Records.—North Rim of Grand Canyon, Arizona, 9000 feet, July 19, 1934, female (P. E. Geier). Kaibab Plateau, North Rim of Grand Canyon, Arizona, July 11, 1931, male, females (Gertsch).

Dictyna trivittata (Banks)

Lethia trivittata Banks, 1901, Proc. Acad. Nat. Sci. Philadelphia, p. 577, Pl. XXXII, figs. 9, 10.

Record.—Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934, female (E. L. Bell).

The generic position of this species is uncertain. It is certainly not a *Lathys* and likewise does not belong in *Dictynoides*, which genus seems to be synonymous with *Dictynina*.

Micryphantidae

Eperigone taibo Chamberlin and Ivie

Eperigone taibo Chamberlin and Ivie, 1933, Bull. Univ. of Utah, XXIII, pp. 12–13, Pl. III, figs. 26, 27, Pl. IV, figs. 28–31.

Record.—Near Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934, male (F. E. Lutz).

Horcotes quadricristatus Emerton

Lophocarenum quadricristatum Emerton, 1882, Conn. Acad. Arts and Sci., V, p. 48, Pl. XIII, fig. 3.

Horcotes quadricristatus Crosby and Bishop, 1933, Annals Ent. Soc. America, XXVI, pp. 151–152, Pl. VII, figs. 170–176.

Records.—Near Aspen Spring, San Francisco Mountains, Aug. 13, 1934, two males (D. Rockefeller).

This distinctive species has heretofore been recorded only from Mt. Washington, New Hampshire.

Agelenidae

Chorizomma texana, new species

Figures 36 and 37

Male.—Total length, 2.20 mm. Carapace, 1.00 mm. long, 0.75 mm. wide. Abdomen, 1.15 mm. long, 0.75 mm. wide.

Whole spider white to pale yellow, the legs and palpi distally light brown. Carapace convex, the sutures obsolete, suboval in outline, clothed with a sparse covering of fine black hairs. Eyes six, in a closely set group close to the clypeal margin, the group about half as wide as the carapace at that point. Clypeus half as high as the

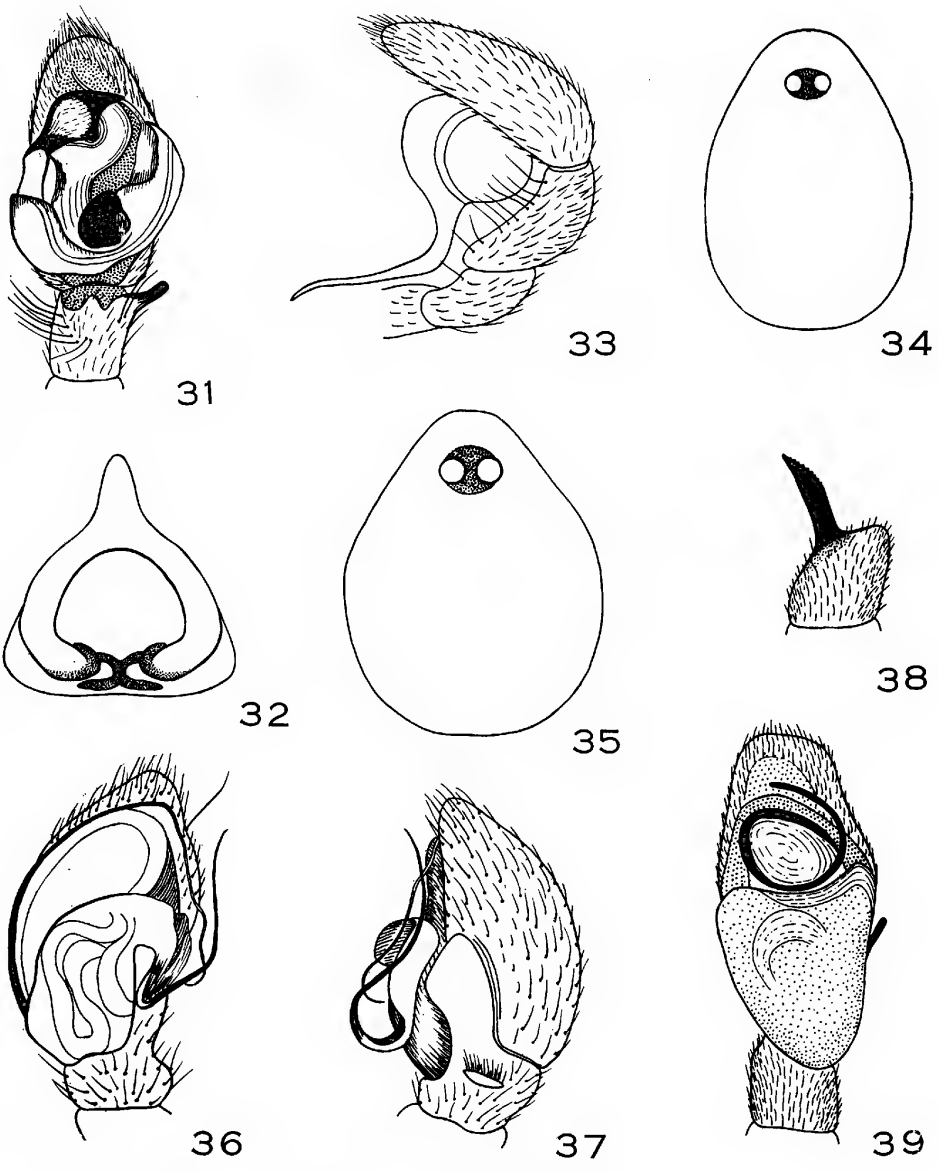

Fig. 31. *Zorocrates aemulus*, new species, palpus.
Fig. 32. *Zorocrates aemulus*, epigynum.
Fig. 33. *Orthonops gertschi* Chamberlin, palpus.
Fig. 34. *Orthonops gertschi* Chamberlin, carapace of male.
Fig. 35. *Tarsonops systematicus* Chamberlin, carapace of female.
Fig. 36. *Chorizomma texana*, new species, palpus, ventral view.
Fig. 37. *Chorizomma texana*, new species, palpus, lateral view.
Fig. 38. *Habrocestum belli*, new species, tibia of male palpus.
Fig. 39. *Habrocestum belli*, new species, palpus, ventral view.

diameter of an anterior lateral eye. Anterior lateral eyes separated by a diameter, the medians missing. Posterior eye row straight or very weakly procurved, as viewed from above, the slightly smaller medians separated by over their diameter, half as far from the laterals, which are about equal to the anterior lateral eyes in size. Sternum longer than broad (8/7), truncate behind where the last coxae are separated by their width. Labium broader than long (9/6), three-fifths as high as the endites. Under side armed with fine black hairs. Chelicerae armed on the lower margin with four small teeth.

Legs strongly spinose, the tibiae and metatarsi armed below with three pairs of long spines. All tibiae with two prolateral spines, the first with a median dorsal that is nearly lateral in position. Tibia and patella of the fourth pair of legs about equal to those joints of the first leg, scarcely as long as the width of the carapace. Palpus as figured, the conductor much longer than in *C. californica.*

TYPE LOCALITY.—Male holotype from Llano, Llano Co., Texas Dec., 1934, collected by Mr. L. Irby Davis.

Cicurina intermedia Chamberlin and Ivie

Cicurina intermedia CHAMBERLIN AND IVIE, 1933, Bull. Univ. of Utah, XXIII, pp. 46–48, Pl. XI, figs. 116–118.

RECORD.—Aspen Spring, San Francisco Mountains, Aug. 10, 1934, female (E. L. Bell).

Agelena californica Banks

Agelena californica BANKS, 1896, Jour. New York Ent. Soc., IV, p. 89.

RECORD.—North Rim of Grand Canyon, Arizona, July 19, 1934, male, female (E. L. Bell). Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934, female (E. L. Bell); female (F. E. Lutz).

OXYOPIDAE

Peucetia viridans (Hentz)

Oxyopes viridans HENTZ, 1845, Jour. Boston Soc. Nat. Hist., V, p. 195, Pl. XVII, fig. 2.

RECORD.—Phantom Ranch, Grand Canyon, Arizona, July 24, 1934, immatures (P. E. Geier).

LYCOSIDAE

Pardosa sabulosa Banks

Pardosa sabulosa BANKS, 1898, Proc. California Acad. Sci., (1) I, p. 273, Pl. XVI, fig. 28.

RECORD.—Walnut Canyon, Flagstaff, Arizona, Aug. 18, 1934, female (F. E. Lutz).

Pardosa mercurialis Montgomery

Pardosa mercurialis Montgomery, 1904, Proc. Acad. Nat. Sci. Philadelphia, p. 270, Pl. xix, figs. 20, 21.

Records.—Indian Gardens, Grand Canyon, Arizona, July 24, 1934, female (F. E. Lutz); three females (E. L. Bell). Phantom Ranch, Grand Canyon, Arizona, July 27, 1934, two females (P. E. Geier); male, female (E. L. Bell). Walnut Canyon, Flagstaff, Arizona, Aug. 18, 1934, female and immatures (F. E. Lutz).

Pardosa falcifera F. Cambridge

Pardosa falcifera F. Cambridge, 1902, 'Biologia Centrali-Americana,' Araneidea, II, p. 318, Pl. xxx, figs. 23, 24.

Record.—Supai, Havasu Canyon, Arizona, Aug. 5, 1934, male, female (E. L. Bell).

Pardosa yavapa Chamberlin

Pardosa yavapa Chamberlin, 1925, Bull. Mus. Comp. Zoöl., LXVIII, pp. 231, 232.

Pardosa orophila Gertsch, 1933, American Museum Novitates, No. 636, p. 28, fig. 45.

Records.—North Rim of Grand Canyon, Arizona, July 19, 1934, four females (P. E. Geier); female (E. L. Bell). Near Aspen Spring, San Francisco Mountains, Aug. 10, 1934, male, four females (F. E. Lutz). Fremont Saddle, next to Lowell Peak, San Francisco Mountains, Arizona, 11,000 feet, Aug. 12, 1934, male, female (F. E. Lutz). Near base of Sunset Peak, San Francisco Mountains, Arizona, Aug. 17, 1934, female (F. E. Lutz).

The last-mentioned female has the peculiar epigynum of the type of *Pardosa orophila* Gertsch.

Pardosa wyuta Gertsch

Pardosa atra Banks, 1894, Jour. New York Ent. Soc., II, p. 52. (Not *atra* Giebel, 1869.)

Pardosa wyuta Gertsch, 1934, American Museum Novitates, No. 693, p. 17. (New name for *atra* Banks, 1894.)

Record.—North Rim Grand Canyon, Arizona, July 19, 1934, two females (P. E. Geier), 9000 feet.

Pardosa distincta Blackwall

Lycosa distincta Blackwall, 1846, Annals and Mag. Nat. Hist., London, XVII, p. 32.

Record.—North Rim Grand Canyon, Arizona, July 19, 1934, female (P. E. Geier), 9000 feet.

Pardosa mackenziana Keyserling

Lycosa mackenziana Keyserling, 1876, Verh. k. k. Zool.-Bot. Gesell., Wien, XXVI, p. 621, Pl. I, fig. 7.

Records.—North Rim of Grand Canyon, Arizona, 9000 feet, July 19, 1934, two females, several immatures (P. E. Geier); female (E. L. Bell). Near Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934, female (F. E. Lutz); two females (E. L. Bell).

Pardosa groenlandica (Thorell)

Lycosa groenlandica Thorell, 1872, Ofvers. K. Vet. Akad. Förh., XXIX, p. 157.

Records.—Timberline to top of Peak, 12,600 feet, San Francisco Mountains, Arizona, Aug. 12, 1934, female (D. Rockefeller). Along fire road from San Francisco Peak to Freidlein Prairie, Aug. 13, 1934, female (P. E. Geier). Aspen Spring, San Francisco Mountains, Arizona, Aug. 14, 1934, female (E. L. Bell).

Arctosa alpigena (Doleschal)

Lycosa albohastata Emerton, 1894, Trans. Connecticut Acad. Arts and Sci., IX, p. 423, Pl. III, fig. 3.

Record.—Doyle Saddle, between Fremont and Agassiz Peaks, San Francisco Mountains, Arizona, 11,500 feet, Aug. 14, 1934, female (P. E. Geier).

Arctosa chamberlini Gertsch

Arctosa chamberlini Gertsch, 1934, American Museum Novitates, No. 693, pp. 10–11.

Record.—Indian Gardens, Grand Canyon, Arizona, July 24, 1934, female (E. L. Bell).

Arctosa littoralis (Hentz)

Lycosa littoralis Hentz, 1844, Jour. Boston Soc. Nat. Hist., IV, p. 388, Pl. XVII, fig. 9.

Records.—Below Phantom Ranch, Grand Canyon, Arizona, July 28, 1934, male, immatures (E. L. Bell). Supai, Coconino Co., Arizona, Aug. 3, 1934, male (P. E. Geier).

Tarentula kochi Keyserling

Tarentula kochi Keyserling, 1876, Verh. k. k. Zool.-Bot. Gesell., Wien, XXVI, p. 636, Pl. I, fig. 18.

Records.—Near Bright Angel Spring, North Rim Grand Canyon, Arizona, July 18, 1934, female (F. E. Lutz). North Rim Grand Canyon, Arizona, July 19, 1934, immature females (E. L. Bell). Near Neal

Spring, North Rim Grand Canyon, Arizona, July 18, 1934, female (F. E. Lutz). Near Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934, females (F. E. Lutz); female (E. L. Bell). Fremont Saddle, San Francisco Mountains, Arizona, 11,000 feet, Aug. 12, 1934, male (E. L. Bell).

Lycosa coloradensis Banks

Lycosa coloradensis Banks, 1894, Jour. New York Ent. Soc., II, p. 50.

Record.—Tucson, Arizona, July and Aug., 1934, immature female (P. Steckler).

Lycosa antelucana Montgomery

Lycosa antelucana Montgomery, 1904, Proc. Acad. Nat. Sci. Philadelphia, p. 282, Pl. xviii, figs. 5, 6.

Record.—Supai, Coconino Co., Arizona, Aug. 3, 1934, female (P. E. Geier), Tucson, Arizona, July and Aug., female (P. Steckler).

Lycosa frondicola Emerton

Lycosa frondicola Emerton, 1885, Trans. Connecticut Acad. Arts and Sci., VI, p. 484, Pl. xlvi, fig. 3.

Records.—Near Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934, female (F. E. Lutz). Flagstaff, Arizona, Aug. 9, 1934, female (E. L. Bell).

Lycosa gosiuta Chamberlin

Lycosa avara var. *gosiuta* Chamberlin, 1908, Proc. Acad. Nat. Sci. Philadelphia, p. 281, Pl. xx, fig. 4.

Record.—Kaibab Forest, near North Rim Grand Canyon, Arizona, July 10, 1931, female (Gertsch).

Hersiliidae

Tama mexicana (Cambridge)

Hersilia mexicana Cambridge, 1892, 'Biologia Centralia Americana,' Arachnida-Araneidea, I, p. 107, Pl. xiv, fig. 6.

Records.—Native Palms, Brownsville, Texas, Nov. 3, 1934, two males (S. Mulaik). Brownsville, Texas, July 1, 1934, female (J. N. Knull). Edinburg, Hidalgo Co., Texas, male from mud daubers nest (S. Mulaik). Fifteen miles south of Edinburg, March, 1933, male, females (S. Mulaik).

THERIDIIDAE

Lithyphantes distinctus (Thorell)

Steatoda distincta THORELL, 1877, Bull. U. S. Geol. Survey, III, p. 485.

RECORD.—South Rim Grand Canyon, Arizona, July 22, 1934, female (E. L. Bell).

Lithyphantes corollatus ((Linnaeus)

Aranea corollata LINNAEUS, 1758, 'Systema Nature,' 10th Ed., p. 621.

RECORDS.—North Rim Grand Canyon, Arizona, July 19, 1934, females (E. L. Bell). South Rim Grand Canyon, Arizona, July 22, 1934, two females (E. L. Bell). Rim of Walnut Canyon, San Francisco Mountains, Arizona, Aug. 18, 1934, seven females (Mr. and Mrs. E. L. Bell). Walnut Canyon, San Francisco Mountains, Arizona, Aug. 18, 1934, female (D. Rockefeller).

Theridion placens Keyserling

Theridion placens KEYSERLING, 1884, 'Die Spinnen Amerikas,' Theridiidae, I, p. 71, Pl. III, fig. 43.

RECORDS.—Near Neal Spring, North Rim Grand Canyon, Arizona, July 18, 1934, male, females (D. Rockefeller and P. E. Geier).

Steatoda grandis Banks

Steatoda grandis BANKS, 1901, Proc. Acad. Nat. Sci. Philadelphia, p. 678.

RECORDS.—South Rim Grand Canyon, Arizona, July 22, 1934, female (E. L. Bell). Walnut Canyon, San Francisco Mountains, Arizona, Aug. 19, 1934, female (E. L. Bell).

Latrodectus mactans (Fabricius)

Aranea mactans FABRICIUS, 1775, 'Entom. Syst.,' II, p. 410, No. 11.

RECORDS.—Supai, Arizona, Aug. 3, 1934, male (P. E. Geier). Rim of Walnut Canyon, San Francisco Mountains, Aug. 18, 1934, immatures (Mr. and Mrs. E. L. Bell). Walnut Canyon, San Francisco Mountains, Arizona, Aug. 19, 1934, immatures (E. L. Bell). Foot of Sunset Crater, San Francisco Mountains, Arizona, Aug. 18, 1934, females (D. Rockefeller).

LEPTONETIDAE

Leptoneta californica Banks

Figure 11

Leptoneta californica BANKS, 1904, Proc. California Acad. Sci., (3) III, p. 333, Pl. XXXVIII, fig. 11.

RECORD.—A female, presumably this species, from Blackwell, Texas, Aug. 15, 1926 (F. C. Bishopp).

Usofila gracilis Marx

Usofila gracilis Marx, 1891, Proc. Ent. Soc. Washington, II, p. 9, Pl. 1, fig. 6.

Record.—Mill Creek, Salt Lake City, Utah, Sept. 8, 1930, female (W. J. Gertsch).

Linyphiidae

Linyphia marginata C. Koch

Linyphia marginata C. Koch, 1834, Herr. Schaeff. 'Deutsch Ins.,' Heft 127, p. 21.

Record.—Near Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934, male (F. E. Lutz).

Linyphia communis Hentz

Linyphia communis Hentz, 1850, Jour. Boston Soc. Nat. Hist., p. 28, Pl. IV, fig. 4.

Record.—Indian Gardens, Grand Canyon, Arizona, July 24, 1934, two females (F. E. Lutz).

Pityohyphantes hesperus (Chamberlin)

Linyphia hespera Chamberlin, 1920, Canadian Entomologist, LI, pp. 194–195, Fig. 19 (sub. 4).

Records.—Near Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934, females (F. E. Lutz); females (D. Rockefeller).

In the southwestern United States the common Holarctic *Pityohyphantes* (*P. phrygiana* C. Koch) is replaced by a closely related species, described as *Linyphia hespera* by Chamberlin. A third species of the genus, *Pityohyphantes* (*Linyphia*) *limitanea* Emerton, a much smaller form, is known from New England and has recently been found to be very common in Alberta, Canada.

Argiopidae

Leucauge venusta (Walckenaer)

Epeira venusta Walckenaer, 1837, 'Insectes Apteres,' II, p. 90.

Record.—Supai, Havasu Canyon, Arizona, Aug. 2, 1934, female (F. E. Lutz).

Tetragnatha extensa (Linnaeus)

Aranea extensa Linnaeus, 1758, 'Systema Naturae,' 10 Ed., I, p. 621.

Records.—Near Neal Spring, North Rim Grand Canyon, Arizona, July 18, 1934, male, two females (D. Rockefeller); two females (P. E. Geier). Near Phantom Ranch, Grand Canyon, Arizona, July 26, 1934, females (E. L. Bell and D. Rockefeller).

Tetragnatha laboriosa (Hentz)

Epeira laboriosa Hentz, 1850, Jour. Boston Soc. Nat. Hist., VI, p. 27, Pl. iv, fig. 3.

Record.—Supai, Havasu Canyon, Arizona, Aug. 2, 1934, immature females (F. E. Lutz).

Argiope trifasciata (Forskål)

Aranea trifasciata Forskål, 1775, 'Descript. Anim.'

Record.—Below Phantom Ranch, Grand Canyon, Arizona, July 26, 1934, female (E. L. Bell).

Aranea gemma (McCook)

Epeira gemma McCook, 1888, Proc. Acad. Nat. Sci. Philadelphia, p. 193, Figs. 1, 2.

Record.—Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934, female (P. E. Geier).

Aranea displicata (Hentz)

Epeira displicata Hentz, 1847, Jour. Boston Soc. Nat. Hist., V, p. 476, Pl. xxxi, fig. 17.

Record.—Near Neal Spring, Grand Canyon, Arizona, July 18, 1934, female (P. E. Geier)

Neoscona oaxacensis Keyserling

Epeira oaxacensis Keyserling, 1863, Sitz-Ber. der Isis zu Dresden, p. 121, Pl. v, figs. 12–16.

Record.—Below Phantom Ranch, Grand Canyon, Arizona, July 26, 1934, male, three females (F. E. Lutz).

Zoropsidae

Zorocrates mistus Cambridge

Zorocrates mistus Cambridge, 1896, 'Biologia Centralia Americana,' Arachnida-Araneidea, I, p. 176, Pl. xxi, figs. 9, 10.

Record.—Santa Rosa Valley, Baboquivari Mountains, Arizona, Aug. 12, 1916, immature female (F. E. Lutz).

Zorocrates aemulus, new species

Figures 31 and 32

Male.—Total length, 5.25 mm. Carapace, 2.75 mm. long, 2.00 mm. wide. Abdomen, 2.25 mm. long, 1.50 mm. wide.

Integument of the carapace dull yellow, sparsely clothed with fine black hairs that form two indistinct dark dorsal bands. Sternum and mouth parts dull yellow, covered

with black hairs. Legs basally dull yellow, distally light brown, clothed with black hairs and armed with strong spines. Abdomen gray, with black markings on the dorsum, the venter unmarked.

Carapace longer than broad, convex, the cephalic part poorly delimited from the thoracic, the median suture longitudinal. Sides well rounded, the pars cephalica weakly constricted at the sides, nearly square in front. First row of eyes narrower than the second, which row is about five-eighths as wide as the carapace at that point. Clypeus half as high as the diameter of an anterior lateral eye. First row of eyes procurved as viewed from in front, equidistantly spaced, the medians somewhat smaller. Eyes of the second row practically straight, subequal, the medians separated by their radius, about a diameter from the laterals. Median ocular quadrangle as broad as long, slightly narrowed in front, the anterior medians slightly smaller. Lateral eyes subequal. Sternum slightly longer than broad (20/17), suboval. Labium four-fifths as broad as long, five-ninths as long as the endites. Lower margin of the furrow of the chelicera armed with three subequal teeth, the upper with three of which the middle one is larger.

Leg formula, 4123. All tarsi scopulate beneath. First two pairs of legs more thickly covered with hairs than the posterior pairs.

	Femur	Patella	Tibia	Metatarsus	Tarsus	Total
I	2.42	1.16	2.25	2.12	1.12	9.07 mm.
II	2.08	1.00	1.75	1.75	0.90	7.48 mm.
III	1.75	0.90	1.42	1.75	0.75	6.57 mm.
IV	2.62	1.00	2.31	3.00	1.08	10.01 mm.

Spines. First leg. Femur: dorsal, 1–1–1, prolateral, 1 distal. Tibia: ventral, 2–2–2–2. Metatarsus: ventral, 2–2–2. Elsewhere none. Second leg as first but prolateral spine of femur missing. Third leg. Femur: dorsal, 3–3–3, Patella: prolateral, 1, retrolateral, 1. Tibia: dorsal, prolateral and retrolateral, each 1–1, ventral, 2–2–2. Metatarsus: dorsal, 1–2–2, ventral, 2–2–2, prolateral and retrolateral, each 1–1–1. Fourth leg. Femur: dorsal, 3–4–3. Patella: retrolateral, 1. Tibia: dorsal, prolateral and retrolateral, each 1–1–1, ventral, 2–2–2–2. Metatarsus: dorsal, 1 median, prolateral and retrolateral, each 1–1–1–1, ventral 2–2–2–2.

Female.—Total length, 6.75 mm. Carapace, 3.25 mm. long, 2.75 mm. wide. Abdomen, 3.30 mm. long, 2.00 mm. wide.

Color and structure as in the male, the legs proportionately shorter, the metatarsus and tarsus of the first two legs and the tarsi of the last two pairs scopulate beneath. Calamistrum a band of hairs on the fourth metatarsus, occupying the basal third of the length of the joint. Epigynum as figured.

Type Locality.—Male holotype, female allotype, and paratypes of both sexes from one-half mile east of Rio Grande City, Texas, Nov. 11, 1934 (S. Mulaik). Male and female paratypes from thirty-two miles east of Laredo, Texas, Nov. 11, 1934 (S. Mulaik). Male and female paratypes from thirty miles west of Edinburg, Texas, Nov. 24, 1934 (Mulaik, Rutherford and Welch, collectors).

This small species agrees with *Zorocrates pictilis* Simon in having four, rather than the conventional five, pairs of spines beneath the first

tibiae. Miss Bryant of the Museum of Comparative Zoölogy has kindly compared this species with examples of *pictilis* from Lower California and has pronounced them distinct. *Zorocrates pictilis* Simon is a much larger species.

SPARASSIDAE

Olios abnormis Keyserling

Olios abnormis KEYSERLING, 1883, Verh. k.k. Zool.-Bot. Gesell., Wien, XXXIII, p. 679, Pl. XXI, fig. 27.

RECORD.—Kits Peak Rincon, Baboquivari Mountains, Arizona, July 31–Aug. 3, 1916, male (F. E. Lutz).

Olios fasiculatus Simon

Olios fasiculatus SIMON, 1880, Actes Soc. Linn., Bordeaux, XXXIV, p. 307.

RECORDS.—Scottsdale, Arizona, Jan. 3, 1903, females (Britcher). Tucson, Arizona, July and Aug., 1934, females (P. Steckler).

THOMISIDAE

Thanatus peninsulanus Banks

Thanatus peninsulanus BANKS, 1898, Proc. California Acad. Sci., (3) I, p. 265, Pl. XVI, fig. 11.

Thanatus retentus CHAMBERLIN, 1919, Pomona College Jour. Ent. and Zoöl., XII, p. 9, Pl. VI, fig. 5.

RECORD.—Ruins near Tucson, Arizona, July and August, 1934, males, females (P. Steckler).

Tibellus chamberlini Gertsch

Tibellus chamberlini GERTSCH, 1933, American Museum Novitates, No. 593, pp. 10–11, Figs. 7, 8, 9, 14.

RECORDS.—North Rim Grand Canyon, Arizona, July 18, 1934, two males (F. E. Lutz). South Rim Grand Canyon, Arizona, July 22, 1934, female (D. Rockefeller). Near Phantom Ranch, Grand Canyon, Arizona, July, 26, 1934, females (D. Rockefeller and P. E. Geier).

Titanebo mexicanus (Banks)

Ebo mexicanus BANKS, 1898, Proc. California Acad. Sci., (3) I, p. 256, Pl. XVI, fig. 9.

RECORD.—Foot of Sunset Crater, San Francisco Mountains, Arizona, Aug. 18, 1934, female (D. Rockefeller).

Philodromus alascensis Keyserling

Philodromus alascensis Keyserling, 1883, Verh. k. k. Zool.-Bot. Gesell., Wien, XXXIII, p. 674, Pl. xxi, fig. 22.

Record.—Aspen Spring, San Francisco Mountains, Arizona, Aug. 11, 1934, two immature females (D. Rockefeller).

Philodromus rufus Walckenaer

Philodromus rufus Walckenaer, 1825, 'Faune Francaise.'

Records.—North Rim Grand Canyon, Arizona, July 18, 1934, female (D. Rockefeller). Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934, female (P. E. Geier).

Misumena vatia (Clerck)

Araneus vatius Clerck, 1757, 'Svensk. Spindl.,' p. 128, Pl. xi, fig. 5.

Record.—Near Neal Spring, North Rim Grand Canyon, Arizona, July 18, 1934, male (P. E. Geier).

Misumenops oblongus (Keyserling)

Misumena oblonga Keyserling, 1880, 'Die Spinnen Amerikas,' Laterigradae, (I), p. 79, Pl. ii, fig. 41.

Misumena americana Keyserling, 1880, idem, p. 85, Pl. ii, fig. 45.

Record.—Indian Gardens, Grand Canyon, Arizona, July 24, 1934, female (F. E. Lutz).

Misumenops dubius (Keyserling)

Misumena dubia Keyserling, 1880, 'Die Spinnen Amerikas,' Laterigradae, (I), p. 90, Pl. ii, fig. 48.

Record.—Phantom Ranch, Grand Canyon, Arizona, July 26, 1934, female (F. E. Lutz).

Misumenops coloradensis Gertsch

Misumenops coloradensis Gertsch, 1933, American Museum Novitates, No. 636, p. 17, Figs. 15, 46.

Records.—Bright Angel Spring, North Rim Grand Canyon, Arizona, July 18, 1934, male (D. Rockefeller). Below Phantom Ranch, Grand Canyon, Arizona, July 28, 1934, female (D. Rockefeller). Idem, male (E. L. Bell). South Rim Grand Canyon, Arizona, July 22, 1934, female (D. Rockefeller). Supai, Havasu Canyon, Arizona, Aug. 2, 1934, male, female (F. E. Lutz). Williams, Arizona, Aug. 8, 1934, female (F. E. Lutz).

Xysticus locuples Keyserling

Xysticus locuples Keyserling, 1880, 'Die Spinnen Amerikas,' Laterigradae, (I), p. 24, Pl. 1, fig. 9.

Record.—Near Bright Angel Spring, North Rim Grand Canyon, Arizona, July 18, 1934, female (F. E. Lutz).

Xysticus cunctator Thorell

Xysticus cunctator Thorell, 1877, Bull. U. S. Geol. Survey, III, p. 494.

Records.—Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934, female (E. L. Bell). Fremont Saddle, San Francisco Mountains, Arizona, Aug. 12, 1934, female (E. L. Bell).

Xysticus lutzi, new species

Male.—Total length, 4.05 mm. Carapace, 2.50 mm. long, 2.42 mm. wide.

Integument of the carapace light brown, heavily masked by irregular dark brown and black maculations, armed with short hairs, a few short, stiff spines and longer spines on the clypeal margin and in the eye region. Dorsum of carapace with an indistinct, median, light band scarcely as wide as the first row of eyes. Ocular area with a transverse creamy-white band which includes the tubercles of both lateral eyes. Posterior declivity with the conventional four large black markings. Sternum, mouth parts and coxae light brown to yellow, spotted with black. Legs lighter brown than the carapace, the distal joints yellow, the basal joints of the first two pairs heavily marked with brown. Abdomen dorsally with a basal and three caudal, indistinct transverse light bands, the venter paler.

Carapace about as broad as long, moderately convex, the sides well rounded, the cephalic portion scarcely half as broad as the greatest width. Cephalic sutures virtually obsolete. Sternum longer than broad (17/15). Labium longer than broad (8/5), more than two-thirds as high as the endites.

Eyes of the first row procurved, the small medians separated by about two diameters, about half as far from the laterals. Eyes of the second row broader than the first (9/7), the smaller medians scarcely two diameters apart, two and one-half diameters from the medians. Median ocular quadrangle longer than broad (7/6), the posterior eyes very slightly larger. Clypeus as high as the diameter of an anterior lateral eye.

Legs provided with black hairs and strong spines. Tibia and metatarsus of the first leg with four pairs of strong ventral spines. First leg: femur, 3.00 mm.; patella, 1.20 mm.; tibia, 2.10 mm.; metatarsus, 2.38 mm.; tarsus, 1.00 mm. long. Tibia and patella of palpus as long as the tarsus, the tibia armed with a lateral and a ventral apophysis. Truncus of embolus a black tube, free of the accessory embolic pars pendula at the distal end of the tarsus, which is strongly curved on the retrolateral bulbal surface to fit the deeply excavated tutaculum. Processes on the bulb intimately joined at the base, the upper one much smaller than the lower (distal) apophysis. Other details as figured.

Type Locality.—Male holotype from Kits Peak Rincon, Baboquivari Mountains, Arizona, July 31–Aug. 3, 1916 (F. E. Lutz).

This species is closely related to the various species of the *cunctator* group, but is easily separated by the much larger median apophysis and the greatly curved embolus, which lacks the terminal accessory process present in those species.

GNAPHOSIDAE

Zelotes subterraneus (C. Koch)

Melanophora subterranea C. KOCH, 1839, 'Die Arachniden,' VI, p. 85, Pl. CCI, figs. 491, 492.

RECORD.—Near Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934, females (F. E. Lutz).

Orodrassus coloradensis (Emerton)

Drassus coloradensis EMERTON, 1877, Bull. U. S. Geol. Survey, III, p. 528.

RECORDS.—North Rim Grand Canyon, Arizona, July 19, 1934, female (F. E. Lutz). Doyle Saddle between Fremont and Agassiz Peaks, San Francisco Mountains, Arizona, 11,500 feet, Aug. 14, 1934, female (P. E. Geier).

Gnaphosa brumalis Thorell

Gnaphosa brumalis THORELL, 1875, Proc. Boston Soc. Nat. Hist., XVII, p. 497.

RECORD.—Aspen Spring, San Francisco Mountains, Arizona, Aug. 14, 1934, two females (E. L. Bell).

Gnaphosa muscorum (L. Koch)

Pythonissa muscorum L. KOCH, 1866, 'Die Arachnidenfamilie der Drassiden,' Nurnberg.

Gnaphosa gigantea KEYSERLING, 1887, Verh. k. k. Zool.-Bot. Gesell., Wien, XXXVII, p. 424, Pl. VI, fig. 3.

RECORDS.—Near Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934, females (F. E. Lutz); female (E. L. Bell); Aug. 11, 1934, female (D. Rockefeller); Aug. 14, 1934, females (E. L. Bell). Agassiz Peak, San Francisco Mountains, Arizona, 12,300 feet, Aug. 14, 1934, females (F. E. Lutz).

Drassodes neglectus (Keyserling)

Drassus neglectus KEYSERLING, 1887, Verh. k. k. Zool.-Bot. Gesell., Wien, XXXVII, p. 434, Pl. VI, fig. 10.

RECORD.—Fremont Saddle, San Francisco Mountains, Arizona, Aug. 12, 1934, female (F. E. Lutz).

HOMALONYCHIDAE

Homalonychus selenopoides Marx

Homalonychus selenopoides MARX, 1891, Proc. Ent. Soc. Washington, II, p. 3, Pl. I, fig. 1.

RECORD.—Scottsdale, Arizona, Jan. 8, 1903, female and immatures (Britcher).

The epigynum of the mature female is practically identical with *Homalonychus theologus* Chamberlin from Lower California.

CLUBIONIDAE

Clubiona obtusa Emerton

Clubiona obtusa EMERTON, 1915, Trans. Connecticut Acad. Arts and Sci., XX, p. 153, Pl. III, fig. 4.

RECORD.—Scottsdale, Arizona, December, 1902, male (Britcher).

Chiracanthium inclusum (Hentz)

Clubiona inclusa HENTZ, 1847, Jour. Boston Soc. Nat. Hist., V, p. 451, Pl. XXIII, fig. 18.

RECORD.—Near Phantom Ranch, Grand Canyon, Arizona, July 26, 1934, male (D. Rockefeller).

Lauricius hemicloeinus Simon

Lauricius hemicloeinus SIMON, 1888, Ann. Soc. Ent. France, (6) VIII, p. 208.

RECORDS.—Water Camp, Santa Catalina Mountains, Arizona, male, female (Mrs. Westphall). Otero County, New Mexico, Aug., 1934, males, females (S. Mulaik).

SALTICIDAE

Metaphidippus vitis (Cockerell)

Dendryphantes vitis COCKERELL, 1894, Entomologist, XXVII, p. 207.

RECORDS.—Near Phantom Ranch, Grand Canyon, Arizona, July 26, 1934, males, females (D. Rockefeller); July 27, 1934, males, females (P. E. Geier).

Metaphidippus imperialis (Peckham)

Attus imperialis PECKHAM, 1888, Trans. Wisconsin Acad. Sci., VII, p. 44, Pl. III, fig. 31.

RECORD.—Supai, Havasu Canyon, Arizona, Aug. 3, 1934, male, female (E. L. Bell).

Pellenes signatus Banks

Habrocestum signatum Banks, 1900, Canadian Entomologist, XXXII, p. 101.

Records.—Near Phantom Ranch, Grand Canyon, Arizona, July 26, 1934, male, two females (D. Rockefeller); July 27, 1934, male (P. E. Geier).

Habrocestum belli, new species

Figures 38 and 39

Male.—Total length, 4.50 mm. Carapace, 2.25 mm. long, 1.58 mm. wide.

Integument of the carapace dark brown to black, clothed with a sparse covering of black and white scales and with a few long black hairs that project over the eyes of the first row. Clypeal region and chelicerae dark brown. Sternum and mouth parts dark brown. Integument of the legs light brown, the last three pairs with basal and distal annulae, the first leg mainly dark brown. Abdomen dark brown to black above, without definite pattern, the venter brown to black.

Carapace weakly convex, moderately high (the ratio of height to length being 7:18), broadest behind the third eye row, the sides only slightly convex, the posterior declivity beginning three-fourths of the length behind. First row of eyes recurved, a line along the upper edge of the medians passing through the center of the laterals, which are half as large. Small eyes of the second row midway between the eye rows. Third eye row three fourths as broad as the carapace at that point, nine-tenths as broad as the first row of eyes. Posterior eyes two-thirds as large as the anterior laterals. Eyes occupying about four-fifths of the total length of the carapace. Clypeus one-fifth as high as the diameter of an anterior median eye. Chelicerae slightly excavated on the retrolateral surface, the lower margin of the furrow armed with a single tooth. Sternum scarcely three-fourths as broad as long, bluntly pointed behind, the last coxae subcontiguous, the first coxae separated by their width. Labium longer than broad, half as high as the slightly convergent endites, which are broadest at the distal end.

First leg slightly longer and more robust than the fourth, with a light fringe of black hairs beneath the patella and tibia, the latter joint armed with three pairs of spines, the first pair of which is placed forward one-fourth of the total length from the base, the last pair of spines distal. Palpus as figured.

Type Locality.—Male holotype from near Aspen Spring, San Francisco Mountains, Arizona, Aug. 10, 1934 (F. E. Lutz).

This species is apparently congeneric with *Habrocestum morosum* Peckham with which species it has been compared. The palpus compares favorably with *Tylogonus minutus* Cambridge, a Mexican species which differs considerably in color pattern.

Anyphaenidae

Anyphaena crebrispina Chamberlin

Anyphaena crebrispina Chamberlin, 1919, Pomona College Jour. Ent. and Zoölogy, XII, p. 10, Pl. iv, fig. 4.

Record.—Bear Wallow to Mt. Lemon, Santa Catalina Mountains, Arizona, July 13, 1916, male, two females (F. E. Lutz).

Miss Bryant (1931, Psyche, XXXVIII, p. 113) has suggested that *A. crebrispina* "is probably the male of *A. californica* (Banks)," but the discovery of authentic females proves it to be a good species. The male of *californica* seems clearly to be *Anyphaena ruens* Chamberlin.

Suborder Apneumonomorphae

Caponiidae

Orthonops gertschi Chamberlin

Figures 33 and 34

Orthonops gertschi Chamberlin, 1928, Psyche, XXXV, pp. 235–236.

Records.—Verde River, thirty miles North of Mesa, Arizona, March 14, 1930, female (R. V. Chamberlin). Edinburg, Texas, two females (S. Mulaik). Northwest of Edinburg, Texas, Sept. 3, 1934, female (S. Mulaik). Thirty miles west of Edinburg, Texas, Nov. 24, 1934, male (Rutherford).

Tarsonops systematicus Chamberlin

Figure 35

Tarsonops systematicus Chamberlin, 1924, Proc. California Acad. Sci., (4), p. 601, Fig. 37.

Records.—Northwest of Edinburg, Texas, Sept. 3, 1934, female (S. Mulaik). One-half mile east of Rio Grande City, Texas, Nov. 11, 1934, female (S. Mulaik).